

Monsieur le chancelier
Monsieur le Recteur
Dear Graduates, Chers diplômés,
Chers amis
Mesdames, Messieurs

Thank you very much for the honour bestowed on me, and for allowing me to share this wonderful occasion with you. Je vous remercie de tout coeur.

It's a daunting task to provide you graduates with some memorable words to send you on your way out into the world. I know from lecturing to science students for so many years that, if you are lucky, you can get across three points in a fifty minute lecture. If we scale that down to the length of this talk, that would be about 1/3 of a point I can hope to get across. So, let's be generous, and round up to one point, and hope for the best.

And in science lectures, I often relied on demonstrations to make something stick. But I could not imagine carrying this off here without some serious AV equipment, which would be totally out of place.

Then an idea came to me when I was singing in a choir. Actually, it was during warmup, when we did an exercise that I thought I could use this evening to get my 1/3 point across. I hope that you will indulge me and play along. (I fear *they* might revoke my recent honour if this is a failure!) And please ignore the fact that this is a human experiment and I did not seek prior ethics approval – I won't tell if you don't!

Here's the exercise: I want you to sing one note with me. "Lahhh..." Don't worry at all about being off key – there are no wrong notes here! The important point is to keep the sound going until I indicate to stop – breathe when you need to, and then start in again. Let's try...

There – success! Bravo! Well done! Félicitations!

The point of the exercise is to use this huge and beautiful sound as an analogy for human endeavours: if you will, the music of the spheres -- l'harmonie des sphères.

You are part of the *choir of humanity* -- un ensemble vocal comprenant l'humanité entière. Each of you has a voice to be heard, and we are nothing at all without the collection of all our voices. Each voice is a little different from the others - I confidently predict we could even see the difference in wave patterns on an oscilloscope - but all voices are needed to make the BIG SOUND. In our collective experiment, each of you had to drop out and

take a breath at some point, but when you were out, there were others covering for you. I think of this long sound like a piece of yarn, with individual fibres starting and stopping at different points along the length, together providing collective strength. *Just like humanity.*

And I've noticed that we are a rather diverse crowd in many ways, and yet together we make one cohesive sound. Graduates: as you move to your next stage of life, I encourage you to add your voice to the music of groups different from you, as you will learn from them and they from you. And, similarly, encourage others, different from you – in gender, background, ethnicity, country of origin, religion, language, and even different in political views -- to join your voice. Together, you will be stronger, like the fibres in the yarn.

By the way, I don't mean to imply that you have not already been part of the human choir, but university life is a bit of a bubble. And you are about to undergo a first-order phase transition.

Although we do have diversity in this hall, in other ways, we are very different from a general cross-section of humanity, especially you graduates. The difference is your education. *L' éducation que vous avez reçue vous met à part.* You are science graduates of this great university, with skills that are rare in the general population. In your years at the University of Ottawa, you have learned to analyse and understand complex intellectual matters, and you are especially versed in dealing with numbers. These traits make you different from many others, as such numeracy is not common in society. You have something precious to offer. So, graduates, I call on you to make use of your analytical and numerical skills as you add your voice to the human choir. Your deeply entrenched logic can be helpful in so many circumstances, from the mundane to the professional. And use these same skills to convince others that evidence-based science is a special way to think, and a way to distinguish truth from fiction. We need you to out-sing anti-science voices out there.

And just exactly how should you voice your opinions to others? For one, you can learn about election issues and get out and vote. And you can make your opinions known on all topics by email, or tweet, or post to Facebook, or Instagram, or Snapchat, or whatever comes next. Or you can put down your phone, and knock on a door and have a face-to-face discussion with a real, live person. And I'll let you in on something that is so effective it's almost subversive: Write a letter. On paper. Put it in the mail. This will draw attention for its rarity, and the odds of action are improved because some person actually has to do something with that piece of paper to get it off their desk. (I told you it was a bit subversive.)

Even though I am encouraging you to play up your special skills, being in a choir also teaches humility, as you subsume your individual voice to the collective voice. On this point, I turn to what the Canadian First Nations actor Graham Greene said in his recent Walrus Talk: “There’s nothing wrong with saying hello to a stranger, tipping your hat to somebody, opening a door, or pulling out a chair. It ends up as respect for your fellow human being on this planet.”

The importance of such humility was also shown by a small but potent gesture from Carol King, the great American singer/songwriter, when she took part in the Women’s March on Washington, DC last January. Carol King’s placard read: “*One small voice.*”

Each voice, large or small, can make a difference. And if you don’t like the trajectory that humanity is on, **use your voice to steer it in a better direction.** In the words of the great social anthropologist, Margaret Mead: “Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has.”

I often found in teaching that carrying out the lecture demonstration a second time made the lesson sink in further. So – shall we try it again? As before “Lahhh...”

Did you feel yourself to be part of the choir of humanity? Graduates, are you ready to share your voice more widely, and to encourage others to join your tune?

Now it’s over to you! Chantez bien!

Mary Anne White, OC at University of Ottawa, June 19, 2017